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Locomotive Building in S. P. Shops

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Sacramento Shops Have Built 143 Locomotives

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IT WAS in October, 1872, that the first locomotive, C. P. 173, was turned out of the General Shops at Sacramento for service on the present Southern Pacific Lines. The little engine, big in its time, was a beautiful appearing machine, fairly glistening with its brass trimmings and bands holding the jacket in place, the elaborate brass builders plate between the mud guards, numbers and lettering in red shaded with green and gold, great broad stripes of gold edged with green and red around the tank and on the steam and sand dome, cab grained and varnished, and a beautiful painting of Yosemite Valley on each side of the headlight.

The building of this locomotive marked the establishing of a great industry at Sacramento which now ranks with the greatest in the West; where everything from tiny bolts to huge locomotives and working beams for steamers can be manufactured; and where employment is provided for a normal force of 3100 people.

A few days ago the most recently built locomotive, No. 4328, a 4-8-2 or mountain type, was christened at the shops. Business men and civic leaders of Sacramento joined with Southern Pacific people in celebrating this crowning achievement. The 4328 is the first of eighteen locomotives of the same type to be built at the Sacramento shops during 1925-26 at a total cost of about $1,500,000.

Comparison of the new No. 4328 and the first No. 173 gives an idea of locomotive development during 53 years. No. 173 had a tractive power of 14,480 pounds, weight in working order 66,000 pounds, length about 52 feet, diameter of drivers 54 inches, and cylinders 17x24 inches. No. 4328 has a tractive power of 67,660 pounds, weighs 614,200 pounds in working order, is 97 feet 6¼ inches long, diameter of drivers 73½ inches, and cylinders 28x30 inches.

Since No. 173 went into service in 1872 a total of 142 locomotives have been built at Sacramento shops, 63 having been built since 1917, including the new No. 4328.

The first ten locomotives built at the shops, all of the 4-4-0 type, were used in both freight and passenger service and gave wonderful performance. Most of them were in service until 1906. The first engine was equipped with a crosshead pump for putting water in the boiler and the steam chests were equipped with C. P. automatic self-feed oilers, but evidently were not relied upon as tallow oilers were also applied. G. A. Stoddard was in charge of design of the locomotive, W. H. Milliken was master mechanic of shops, J. J. McCormack was foreman of erecting shop, C. F. Shields was superintendent of boiler shop, A. F. Lashells was superintendent of blacksmith shop, and A. J. Stevens was general master mechanic.

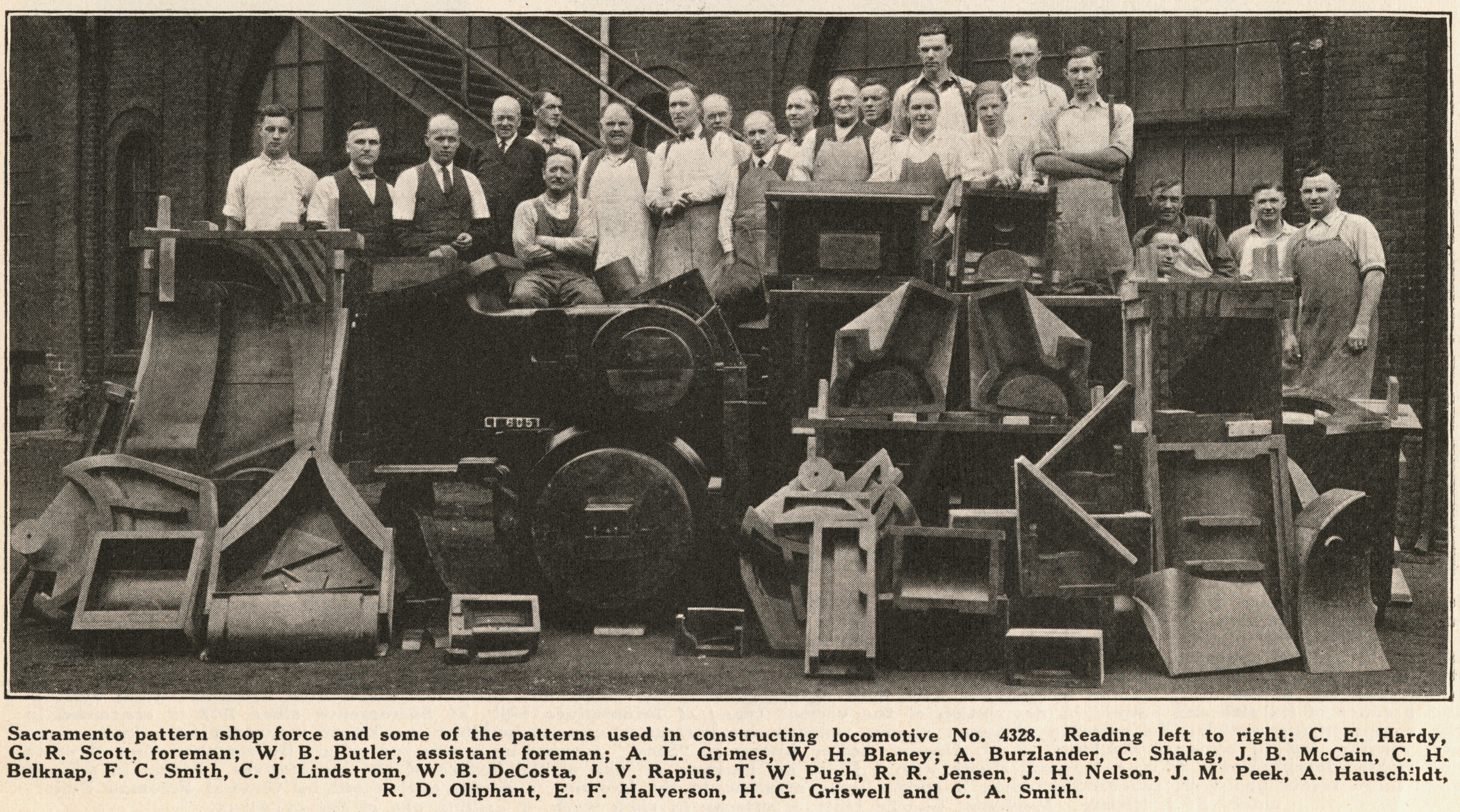
In 1881 the shops were given an order for 7 engines to operate the local trains at Oakland. Mr. Stoddard designed an engine of the 2-6-2 type that operated equally well in either direction, and the first one was turned out in December, 1881. These engines had cylinders 16 in. x 24 in.; drivers 48 in. diameter and weighed 100,000 lbs. when built. The weight was later increased to 103,800 lbs. These little engines were in service at Oakland on the local runs until the line was electrified.

In 1882 the C. P. 229 was designed and built at Sacramento Shops. This was something bigger than had ever been attempted and interest was attracted from all parts of the country. This engine was of the 4-8-0 or 12-wheel type and was designed for service over the Sierra Nevada mountains. It was equipped with steam brakes on drivers and had a steam reversing gear on account of the construction of valves, which were heavy and worked one on top of the other so that it was hard for enginemen to reverse her.

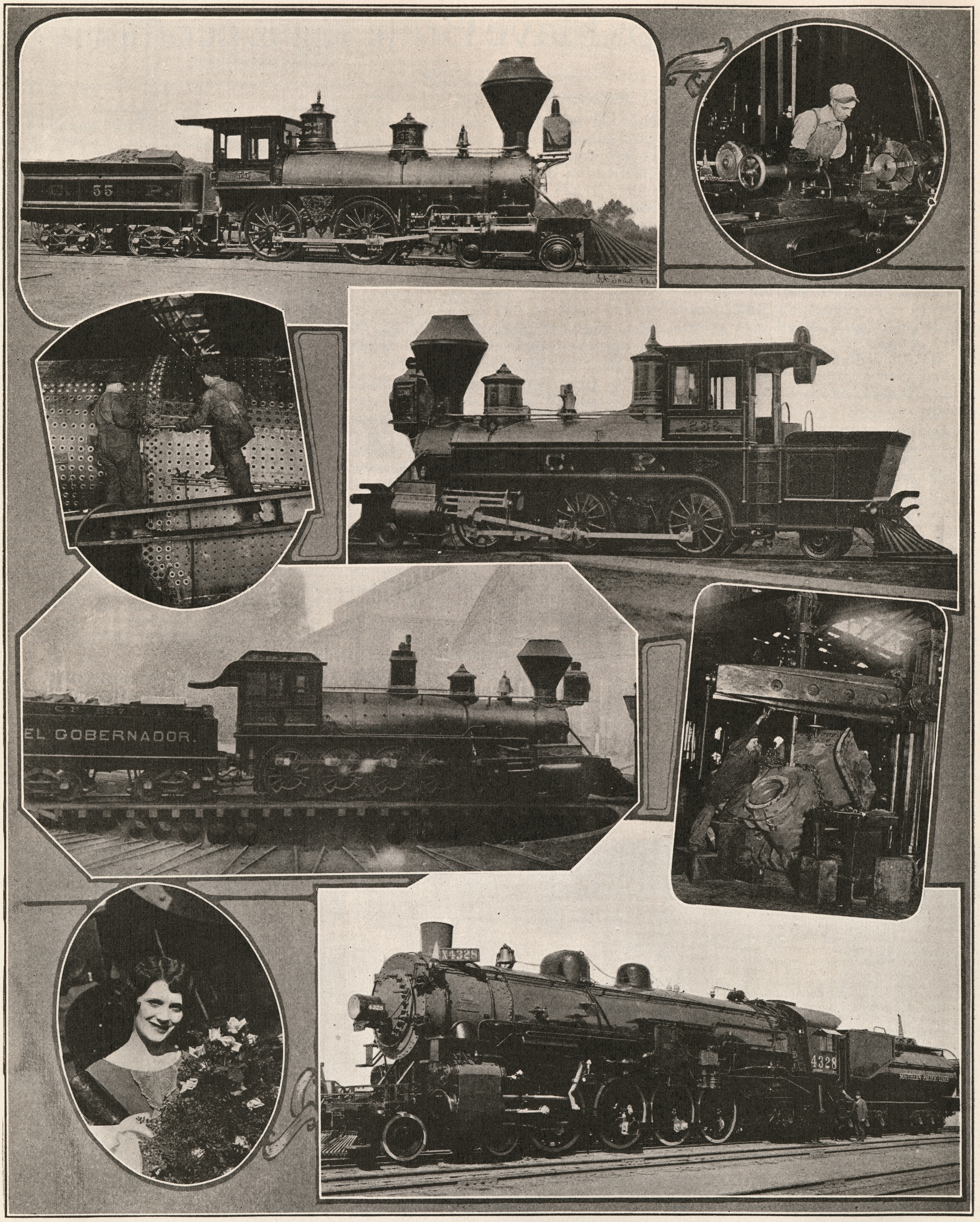
The following is the general data of this engine as originally built: Diameter of cylinders 19 in. x 30 in. stroke, diameter of drivers 54 in. later increased to 56 in. diameter, steam pressure 140 lbs., weight of engine loaded 123,000 lbs., weight on drivers 106,050 lbs., maximum pull of draw bar 22,500 lbs. on a grade of 105 feet to the mile 8 degree curves, hauling 19 loaded cars of 388½ tons.

This engine was quite successful and later on the Cooke Locomotive Works was given an order for 19 or 20 more just like her including double valves, steam brakes and steam reverse gear. This locomotive has been rebuilt and renumbered and is now 2925 and is still in service.

The 229 was such a success that Mr.



Sacramento pattern shop force and some of the patterns used in constructing locomotive No. 4328. Reading left to right: C. E. Hardy, G. R. Scott, foreman; W. B. Butler, assistant foreman; A. L. Grimes, W. H. Blaney; A. Burzlander, C. Shalag, J. B. McCain, C. H. Belknap, F. C. Smith, C. J. Lindstrom, W. B. DeCosta, J. V. Rapius, T. W. Pugh, R. R. Jensen, J. H. Nelson, J. M. Peek, A. Hauschildt, R. D. Oliphant, E. F. Halverson, H. G. Griswell and C. A. Smith.



Sacramento shops are now working on eighteen of the largest locomotives ever built at the shops, the 4-8-0 or Mountain type, one of which is now in service. Miss Marie Smith, left, of the shops store department, aided in the christening. This new powerful locomotive is shown in the lower picture with G. A. Knoblauch, general foreman of erecting shop, standing alongside. Top picture shows C. P. 55. It had the exact appearance of C. P. 173, which was the first locomotive built at the shops in October, 1872. The queer looking engine just below is of the type used in the Oakland local service before those lines were electrified. The "El Gobernador," shown next below, was one of the most famous locomotives ever built at the Sacramento Shops and attracted world wide attention when built in 1883 because of its size and power. A description of the various types of locomotives built at Sacramento since 1872 is contained in the accompanying article. Sacramento shopmen shown working on various stages of building the latest mountain type locomotives are, reading top to bottom: Machinist S. J. Dennis, better known as "Stew," turning up a side rod collar; Boilermaker Mike Brushia and Helper Joseph Lewis driving 1¼ inch rivets with a 90-lb. air hammer on one of the boilers of the locomotives. Strain in driving such large rivets has been relieved by using a spring yoke attached to the hammer, a device gotten out by General Foreman Boilermaker F. J. Hickey. Machinist Charlie Hills, a veteran in such work, is drilling one of the cylinders.

Stevens was tempted to build a still larger engine, and in 1883 built the now famous C. P. 237 and named her "El Gobernador," which is Spanish for "The Governor." This locomotive had a type of valve gear that was the beginning of the Stevens Valve gear. The valves were rotary balanced, with double admission and were driven by Stevens Valve gear employing one eccentric on each side and reversing from the rocker, which was connected to cross head with a union arm. Wide interest was created in this new valve gear and this, coupled with the fact that it was such a big engine, caused the 237 to be spoken of and pictures to be published in journals all over the world.

The cylinders of this engine were 21 in. diameter x 36 in. stroke, driving wheels were 57 in. diameter, diameter of boiler 56 in., No. of flues 178—2¼ in. diameter 16 feet—2½ in. long, steam pressure 140 lbs., total heating surface 1,839.2 sq. ft., weight of engine loaded 146,000 lbs.

This engine was considered the last word in locomotive construction. The brakes were steam operated and on each side of wheel similar to the clasp brakes on tenders and cars of today. Howard Stillman was draftsman in charge of design and Jim Ray had charge of construction. After the engine was built it was kept at Sacramento for nearly a year as the bridges were not deemed strong enough to support it. While it was at Sacramento, whenever a large tourist train was expected the 237 was steamed up and when the time was right would pull a long string of cars past the passenger station to the wonder and amazement of the passengers. She was finally taken to Sumner, now Bakersfield, and was used as a pusher in heavy trains, but was considered too big to be turned on the table. Also for a long time all trains had orders to take the sidings when meeting C. P. 237. Her days were finally ended when in July, 1894, she was broken up at Sacramento. Her boiler did service for years afterwards as a stationary boiler.

In 1885 the first of the Stevens valve gear engines was built at Sacramento and from the records at hand No. 19, later 1762, and still later 2208, was the first of these to be built. No. 19 was a ten-wheeler, 4-6-0 type, cylinder 18 in. x 30 in., drivers 56 in. diameter and weighed 112,200 lbs. in working order. In 1887-1888 there were a number more built of this same type. It was placed in service on the Oregon run using wood for fuel. Coal was used over the mountain and down the valley, but wood was used on the Siskiyou mountains.

In 1886 the 122, 123 and 125 were turned out of Sacramento Shops. These were 8 wheelers, or 4-4-0 type and were equipped with A. J. Stevens valve gear. They were passenger engines designed for speed and had cylinders 17 in. x 26 in.; drivers 68 in. diameter and weighed 88,500 lbs. in working order. They were found to be too heavy on the truck and the truck journals ran hot, so a pair of equalizers had to be put on outside of the truck wheels and the axles lengthened so that the truck axles had four bearings.

Harry Ingram, machinist at Sacramento shops, shown here operating a double headed shaper, probably has a record for length of service at one particular machine. The shaper was installed in 1903 and Mr. Ingram has been running it ever since, and doing a fine job of it too, according to Superintendent H. C. Venter. Mr. Ingram is 66 years old, the oldest employe in the shops, and first went to work in June, 1879. He is hale and hearty and expects to easily stay on the job the four more years before he retires on pension.

During the years 1886, 1887 and 1888 there were a large number of engines built at Sacramento, mostly 4-6-0 type and 4-4-0 type. These were all equipped with Stevens valve gear In addition to these there were built 13 consolidation locos or 2-8-0 type. These were always called "Stevens' Monkey hogs" by the men. They were equipped with Stevens valve gear or Stevens "Monkey Motion" as it was frequently called. They got this name from the fact that when in motion the eccentric rod, or "galloping rod," had the appearance of a monkey hopping along.

The Stevens valve gear had much the appearance of the present day Walschaert valve gear, but was different in one respect. There were two valves one for each end of the cylinder and one rod worked the forward valve and was worked off of the crosshead; the rear valve was hollow to allow the forward rod to pass through. The engines were reversed through the medium of a rocker.

Of the engines built at Sacramento during the early days there remain in service today 2925, originally No. 229, 2187, which was originally 213, 2197, which was original'y 241, 1421, which was originally 266 and 2 or 3 of the old local engines. These latter are doing service as shop switchers.

During the World War, Southern Pacific, finding itself in need of engines and not being able to obtain them from their builders decided on a large program of construction.

The result was the building of 14 consolidations or 2-8-0 type at Sacramento Shops the first one being No. 2839 turned out in August, 1917. These were followed by orders for 2 Pacifics or 4-6-2 type, 5 Moguls or 2-6-0 type, 11 ten wheelers or 4-6-0 type, and 34 switchers or 0-6-0 type. All of these have given excellent service and have been in the shop but a small amount of time. The two Pacifics have given an excellent account of themselves.

Sacramento shop employes and supervisory forces are now taking great interest and pride in building of the 4-8-2 or Mountain type locomotives, and are giving their best efforts toward turning out a master piece of locomotive construction.

STATION MASTER'S KINDNESS BRINGS FINE PRAISE

The human side of practical railroading, the element of service contributed by Southern Pacific men and women toward making travelers comfortable and happy, was brought to the attention of Eliot M. Epsteen, general counsel for San Francisco Advertising Club, recently at Sacramento. Geo. F. Rupert, stationmaster at Sacramento, was the employe whose actions so impressed Mr. Epsteen, who wrote the Bulletin, in part as follows:

"Second section of the Overland Limited majestically rolled out of the station, and just as the rear end of the train disappeared from sight a hatless young man, out of breath, came running onto the station platform and asked an austere and official looking gentleman who wore a cap designated 'Station Master', 'Is that my train?' The affirmative reply he received caused him to reel and almost fall in a faint. The look on the station master's face changed. He quickly suggested that the young man take a taxi, go to Roseville and there catch his train. In a twinkling of an eye the youth was gone, with a porter, who apparently sprang from nowhere, helping him off.

"I asked the station master, 'Do you think the young man will retake his train?' He smiled and replied, 'Certainly he will.' 'How do you know' I asked. He seemed surprised at the question and replied, 'It will take about 25 minutes for his train to get to Roseville. There engines must be changed, and the taxi can make it in time. Anyway, I wired to hold the train for him.' 'Do you mean to say,' I inquired, 'that you would hold up a couple of million dollars of equipment and all those passengers for just one young man who missed his train?' 'Well,' was the reply, 'that fellow probably spent a couple of hundred dollars for his trip. This is the last day the excursion rates are in effect East. All his baggage, hat, etc. are on that train. The delay won't be over five minutes at the most and that can easily be made up. It's due to him, do you not think so?'

"So I received a new slant on railroading. Certainly, there was a goodwill building employe. I have discovered that under the surface there is a real human, living, sympathetic force and I am now an enthusiastic booster for Southern Pacific."